

RECORDS ^{OF} THE PAST

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ANCIENT SAMARKAND

BY FREDERICK BENNETT WRIGHT

THE narrow belt of fertile irrigated land which lies between the desert region of Turkestan and the high mountains to the south has been the scene of innumerable conquests of nomad tribes who have roved back and forth over this country. Among these conquerors have been some of the most noted generals in history, and yet they have left us few monuments to testify to their achievements. The most important ruins to be found are those at Timur's ancient capital—Samarkand. Here, out of the one-story mud houses of the present Sart population rise a number of beautiful domes and magnificent buildings which give a faint idea of the former grandeur of the city;—a city whose wealth in 1400 A. D. dazzled and amazed the Spanish Ambassadors who were sent there.

The date of the founding of Samarkand is not known, but it was long before the Christian era. It was known as Maracanda, the capital of Sogdiana when conquered by Alexander the Great. "It was then a well-fortified city, surrounded with walls 10 miles in extent." Alexander made this his headquarters while subduing the Scythians and mountain tribes who "mysteriously appeared to resist his course from the unknown regions beyond." Later it was called Samar, but remained of comparatively little importance until 643 A. D., when the Moslem religion was introduced by the Arab conquerors and it began to grow in influence and power. Between the IX and XI centuries the Samanides had raised it to one of the largest cities of Asia and so protected it that it was spoken of as "The Asylum of Peace and Science." Some idea of its size can be gained from the fact that when Jenghis Khan attacked the city a force of 110,000 men was sent out to oppose him, but even this vast army was unable to withstand the attack of the unconquerable Mongol Prince. After this fall it became of secondary importance again until the XIV century when, under the rule of Timur-leng, or Timur the Tartar, it was raised to the first rank among Asiatic cities, which high position it held with somewhat waning glory until 1700, when it was so completely laid waste that, according to report, only one inhabitant remained.

Before taking up the description of the ruins of Samarkand, it may be well briefly to review the history preceding the time of Timur-leng, when the city reached its greatest magnificence.

In tracing the events which led up to the climax of Samarkand's importance we will have to turn,—not to some great city of Turkestan, Persia or the valley of the Euphrates, but to a small cluster of felt tents pitched on the banks of the Onon river 2500 miles, in a straight line, northeast of Samarkand. Here about the middle of the XII century, a son was born to the prince of a Mongol tribe living in these tents, and this boy, later known as Jenghis Khan, was the destined conqueror of all northern Asia;—a conqueror who made even the European Monarchs tremble on their thrones 4000 miles away.

According to the Chinese historians, Jenghis Khan was born in 1162, but according to the Persian historians he was born in 1155. When he was 13 years old his father died, and the Mongol tribe would have turned to another family for their prince had it not been for the energy and sagacity of his mother, who ruled as regent, and who, by her indomitable courage and diplomatic skill, succeeded in maintaining the unity of the tribe until Jenghis Khan reached the age of 17, when his marvelous career began. Unlike the great generals of Europe, he had none of the educational advantages which greatly assisted those conquerors. His college halls were the deserts and waste places of northern Mongolia, and his tutors the chiefs of the roving Mongol tribes.

Starting from his native land with a comparatively small army composed of nomad tribes, he swept with ever-increasing strength to the westward, following along the fertile valleys where he conquered everything on his way through Turkestan and to the borders of Europe itself. In 1221 his hordes had reached Samarkand, which was captured, pillaged and nearly destroyed. From here he advanced to the Caspian Sea and the Volga River.

After his death, under his son Ogotai, the Mongol hordes swarmed over the steppes of southern Russia, and pushed as far north as Ryazan, Moscow and Vladimir. At Ryazan the cruelties imposed on the conquered inhabitants were appalling. The ruling prince and his family as well as the inhabitants were slaughtered without regard to age or sex. "Some were impaled, some shot at with arrows for sport, some were flayed or had nails or splinters of wood driven under their nails. Priests were roasted alive and nuns and maidens ravished in the churches before their relatives. No eye remained open to weep for the dead." Still pressing westward the Mongol hordes captured Kiev and defeated the armies of Hungary and Poland. But just at this time the death of Ogotai checked the progress of the Mongols and saved western Europe.

On the death of Jenghis Khan he left the bulk of his empire to Ogotai, giving the rest of his sons large dependent appanages, by which arrangement the empire held together fairly well until after the death of Ogotai, when its disintegration became quite rapid. However, for centuries these disunited parts were ruled over individually by direct descendants of Jenghis Khan, who took the title of Khan, which title had great influence with the nomad tribes until long after the time of Timur-leng.

Such a great unwieldy empire lacking the means of communication could not last for any length of time, in fact its comparatively short duration

was surprisingly long when one considers the vast territory and the heterogeneous character of its parts.

In 1336, when the disintegration of the empire founded by Jenghis Khan was far advanced, the hero of Samarkand was born in a small town of Turkestan. In Timur's autobiography we have a very full account of the military life of the conqueror. From this autobiography we might judge that Timur-leng was a model of justice and equity. The text was originally in Turkish with much Arabic interspersed. The first translation was made by Abu-Talib-Hussyny, who presents the translation to the world in the following humble words: "The unworthy and sinful Abu-Talib-al-Hussyny, represents to those who stand at the foot of the royal throne, that during my residence in the two sacred cities of Mecca and Medina, I saw in the library of Jafer, governor of Yemen, a book in the *Turkey* language dictated by his Majesty who now dwells in Paradise, Timur Sahib Kerany, may God pardon him all his offences, in which are inserted all the occurrences of his life from 7 to 71 years, and in which he narrates the means by which he had subdued so many countries."

Starting with a small band of followers Timur-leng passed through all the vicissitudes of fortune incident to a nomad prince; sometimes with a following of 7, which in a few weeks might be augmented to 5,000 or 6,000 only again to be reduced to a mere handful. But he was always spurred on by some favorable sign found in the Koran. As a boy and a young man he would often fall into a trance which might last for days, and from which they had to arouse him by burning his hands. In these trances he was continually seeing visions of his future successes.

When making an attack on Seistan he was wounded in the left foot, which crippled him for life and gave him his familiar name Timur-leng, the Arabic for Timur-lame. The name Tamerlane, by which he is most widely known among English-speaking people, is a corruption of this.

In his autobiography he gives at some length 12 reasons for his success, of which the most important were, his sense of justice and obedience to the laws of Mahomet. He also notes that some of the requisites for success are "patience, perseverance and divine aid." His ideas of the duties of a ruling prince are summed up in the advice which he gave Tugleck Timur, whom he told that "Sovereignty is like a tent, the poles of which should be justice, the ropes equity and the pins philanthropy, in order that it may stand firm."

The erection of the enormous schools and colleges, whose ruins still make Samarkand famous, was in a large part due to the instructions which Timur-leng received from his peer and handed down to his successors. This teacher, whose remains rest in the Mausoleum beside those of Timur-leng, admonished him that, "In whatever palaces the learned have not free entrance there exists neither blessings, goodness, piety nor chastity."

At the age of 7 Timur had learned to copy the Arabic alphabet from a plank, and at the age of 9 he had begun his studies at the Mosque. He spent much time in organizing armies among his school mates whom he drew up in battle array and ordered around as he saw fit. The result was that at the age of 12 he felt very important and as he himself says he received his friends with "great hauteur and dignity." His favorite occupations at this time were reading the Koran, horseback riding, chess playing and as mentioned before maneuvering armies composed of his comrades.

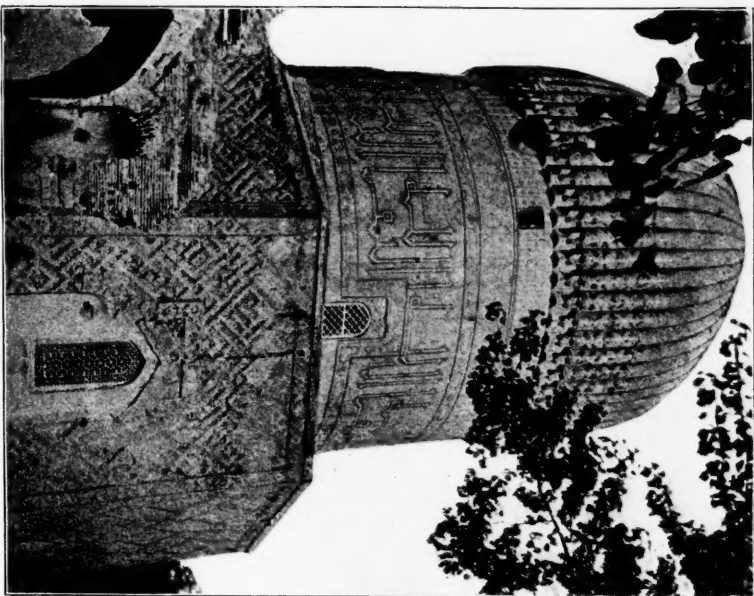
When 16 years old his father turned over to him the monastery and village which he had erected in his own name. Early in life he married the daughter of Amyr Hussyn, an alliance which did not help him for his father-in-law proved to be his most treacherous enemy although continually posing as his best friend. At the age of 25 he conquered the tribes of Maveralnahr who were ruled over by Tugleck Timur Khan, a direct descendant of Jenghis Khan, and set himself up as a ruler, in the face of the precedent that none but a direct descendant of Jenghis Khan should be the prince of any Mongol Khan.

One example of the vicissitudes of his early fortune will give an idea of his personal history to the age of 30. At one time, when deserted by many of his early followers, he was captured by the Turkoman, Aly Beg, who confined him for 53 days in a room which had been used as a cow shed in which swarmed fleas and other vermin. Even in these quarters, however, he had visions that he was still to conquer the world. It had a good effect on him for during this imprisonment he says "I made a vow to God that I would never keep any person, whether guilty or innocent, for any length of time in prison or in chains." Becoming desperate in this place, he decided to risk everything on a rush for liberty. Suddenly surprising the guard, he wrested his sword from him and with this charged on the other guards, routing them all. When Aly Beg saw the large number of guards fleeing before the single man, he was so much pleased with his audacity that he released him and furnished him horses with which to continue his journey.

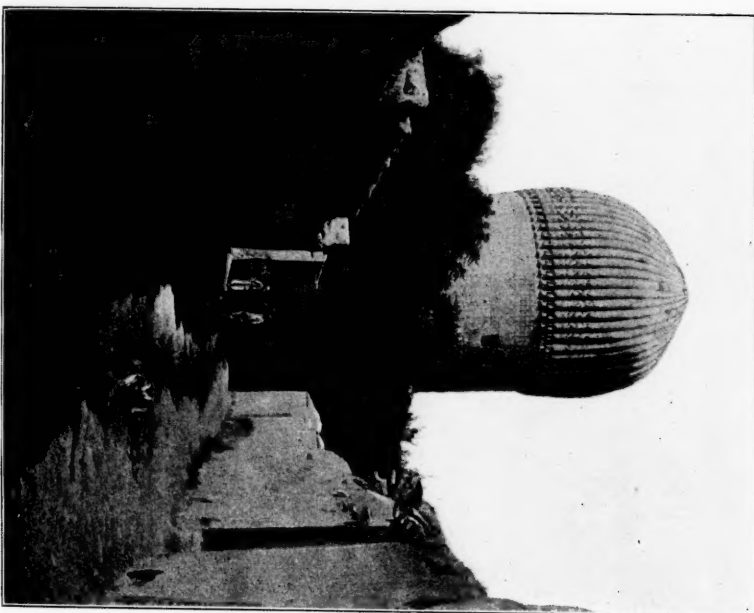
The year following this event when he was 29 years old his fortune had improved so that he had an army of 6,000 followers who defeated 30,000 Jets under the command of Beg Chuck. During the latter part of the same year (1363) he entered Samarkand, but did not make it his permanent capital until 1369. However, Timur-leng never spent much time in his capital. Practically all the remainder of his life was passed in a magnificent moving pavilion drawn by 22 oxen. This pavilion was of gorgeous appearance finished off with the best of materials which had been obtained as booty from the Oriental cities he conquered.

With Turkestan in subjection he marched his forces into Russia, captured Azof and Astrachan, and even made Moscow, which had only recently been freed from the Tartar yoke, tremble. In 1398 with 60,000 men he started across the mountains into India. Here, as in many other cases, his versatile ingenuity won the day for him. The sultan came against him with a large army, having as advance guards a great herd of elephants to whose tusks were fastened poisoned swords. On seeing this, Timur-leng put bundles of hay on his camels, set fire to the hay, and sent the camels to meet the elephants. The latter were stampeded by the fire, and in turn routed the whole Sultan's army. The conquest of India opened the way to an easy capture of the great cities in the Euphrates Valley, from which he obtained an enormous wealth of booty with which to adorn his capital, Samarkand.

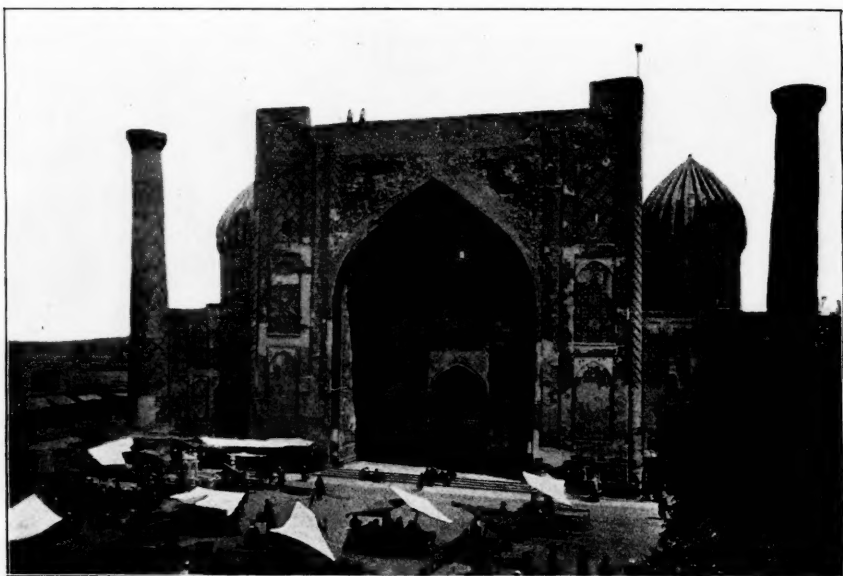
From here he turned his attention to Syria and in 1402 conquered the great army of Bajaxet, the Ottoman Sultan, against whom the crusaders of Europe had marched in vain. He sacked Damascus, and carried away enormous riches to Samarkand.



NEAR VIEW OF THE DOME TO TIMUR-LENG'S MAUSOLEUM SHOW-
ING THE GLAZED BRICK FIGURES. [Distorted on account of tilting
the camera]



REAR VIEW OF THE DOME OF TIMUR-LENG'S MAUSOLEUM FROM
ONE OF THE SART STREETS



FRONT VIEW OF THE SHIR-DAHR MEDRASS FROM THE RIGISTAN, SAMARKAND

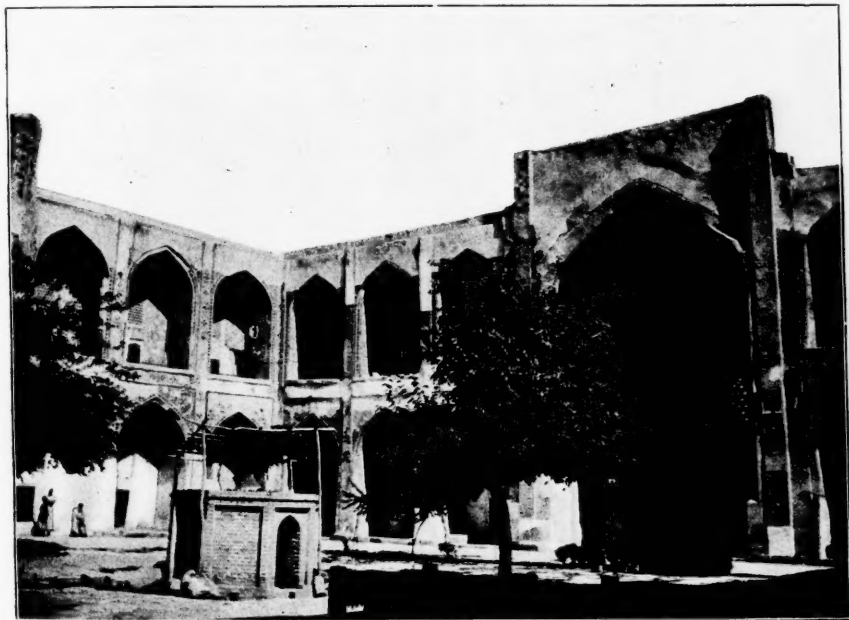
Timur-leng was now 70 years old and without a rival in central Asia, but his restless spirit could not settle down to the monotony of peace. After two months' rest in his magnificent capital, he raised an enormous army and started in the autumn, for the conquest of China. But the weather was cold and on the way he was taken sick and died, so that the expedition was given up. Thus ended the career of a man whose military record may be summed up by saying that he had obtained the dominions of 27 kings so that his territory extended "from the Volga to the Persian Gulf and from Damascus to the Ganges."

Although most of his life was spent in active conquest, peace reigned in Samarkand, and the city prospered to such an extent that it became the second court and Mohammedan center of that time and the saying arose that Mecca is the "heart" but Samarkand the "head of Islam." An idea of the city and its great wealth is given in an account left by the Spanish ambassador, Ruy Gonzalez de Clavijo, who visited Samarkand shortly before Timur-leng's death. He said that they were amazed "at the mosques and terraced palaces, at the gardens rich as Paradise in which thousands upon thousands of pavilions, rosy, azure, snow white stood glittering in the sun, at the festal tables of pure gold, the goblets rough with rubies, the silver dishes which 3 men could hardly carry." He also speaks of a "golden table with a top of solid emerald*** overshadowed by a tree of which the leaves and branches were of pure gold, the fruits of single rubies, pearls and sapphires, and among the boughs of which sat golden birds expanding wings of gems."

Now this is all changed and to-day the Tartar section of Samarkand is a maze of narrow crooked streets lined with one-story mud houses, which, as in all Oriental countries, present blank walls towards the street but open into an inside court or garden. Out of this desolate waste of mud buildings rise the domes and towers which mark the past grandeur of the city. The magnificent court of the Righistan which once marked the literary and business center of not only Samarkand, but the whole of central Asia, is desecrated by the booths of venders of all kind, while in the shadow of one of the large Medrasses, or colleges, on the south side of the Righistan a long row of barbers ply their trade.

In striking contrast to this Tartar section of the city is the Russian section, with its wide avenues lined with tall poplar trees and graced with parks and fine church buildings. It was in 1868, that the Russians entered Samarkand and began their work of reviving the business and increasing the beauty of the city.

Among the benefits derived from the Russian occupation of Samarkand, is the effort which is being made to preserve what time and recent earthquakes have left of the magnificent buildings. A few years ago a severe earthquake destroyed several of the high towers and grand arches, and left the buildings in such a condition that they cannot long withstand the elements. Now that the Russian railroad from the Caspian Sea to Samarkand is in operation it is fairly easy to visit this interesting capital once "the queen of cities and mirror of the world." The Russian hotel accommodations although not sumptuous are very comfortable. That it



A CORNER WITHIN THE COURT OF THE SHIR-DAHR MEDRASS, SAMARKAND

is well worth visiting no one who has taken the trip will deny, and now is the time to visit the place before the disintegration has proceeded further.

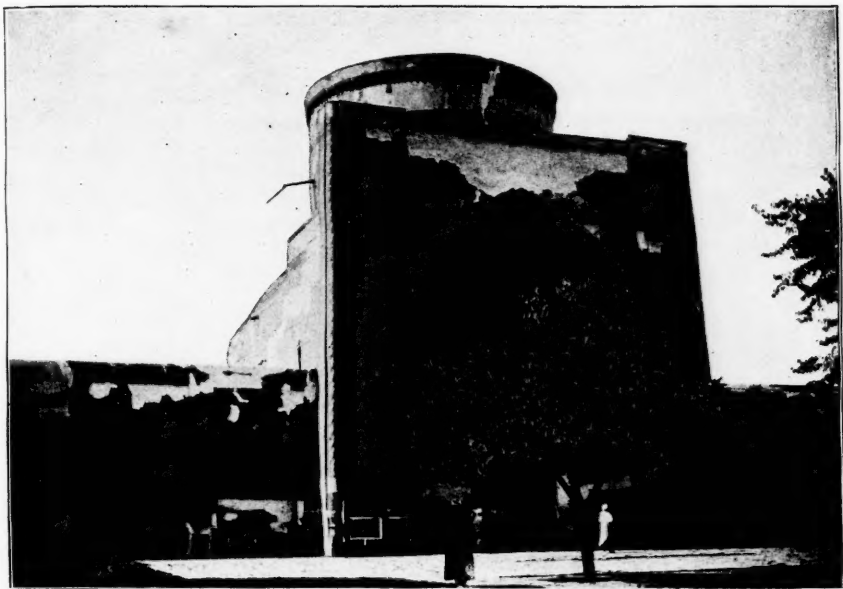
The chief interest naturally is centered in the tomb of Timur-leng. Although his mausoleum is not built on as grand a scale as many of the other buildings in the city, yet its effect is one of the most satisfying and impressive to be seen anywhere. The architect was Abdullah of Ispahan, which is recorded in the following inscription, as deciphered by Vambéry, "the work of poor Abdullah, son of Mohammed, native of Ispahan." This architect was a Persian, but he had been largely influenced by Turkish architecture, so that his work resembles that rather than the Persian.

It is hard to obtain a general view of this marvelous mausoleum except at a distance, for the houses crowd up close to the small garden inclosure in which it is situated. Originally it consisted of a square chapel surmounted by a dome 162 feet high. The chapel had two wings from each of which rose a circular shaft or sort of pseudo-campanile. The recent earthquake destroyed one of these shafts and left the other in a precarious condition. The most effective position for viewing the tomb is from some of the side streets where the fluted dome of brilliantly enameled bricks rises out of a clump of trees which hide its base. The whole is composed of beautifully enameled bricks arranged in geometrical designs. Shades of blue and white predominate, but there are also red and green in the designs. The base is inscribed with large Arabic inscriptions.

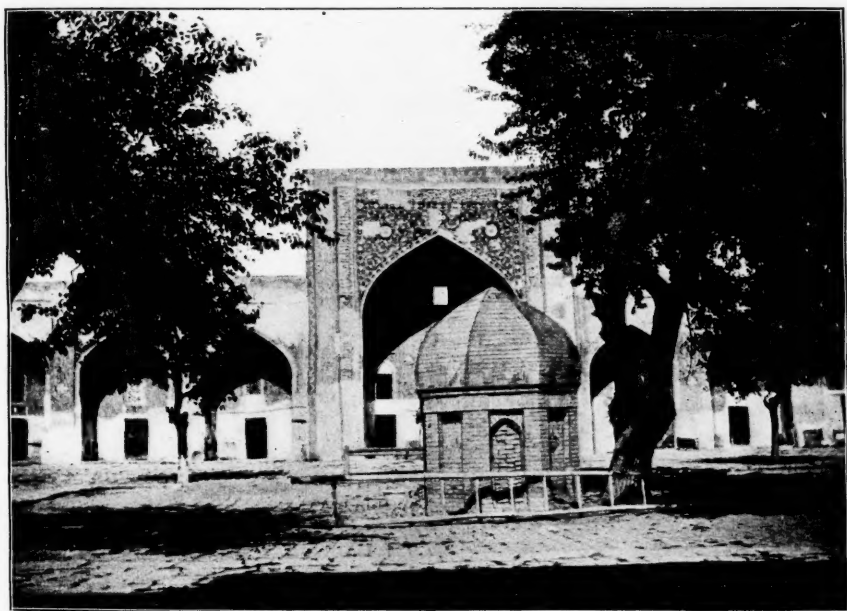
The entrance to the sanctuary is through a "wooden gate, delicately carved and covered with ivory." Inside it is very dark and gloomy, there being very few windows. As Durrieux says, "The eye is lost, astonished, in the profound gloom of this magnificent dome." When accustomed to the darkness it appears that the room is square with recesses on each side. The whole is 36 feet on each side, the recesses being 6 feet. The walls are decorated with alabaster niches and arabesques, and are paneled with slabs of jasper. The pavement is also of jasper. A frieze runs around the room decorated with fine arabesques which are very effective against a blue background. Another form of decoration is composed of Arabic inscriptions some of which recall the history of Timur-leng while others give his favorite verses from the Koran.

In the very center beneath the dome is a jade block over 6 feet long, $1\frac{1}{2}$ feet wide, and slightly over 1 foot thick, which marks the tomb of Timur-leng. Near it are two other cenotaphs bearing the name of Ulug Beg, a grandson of Timur-leng, and Said Mer Berke, his preceptor or teacher, from whom he had gained many of the ideas which contributed to his success. All of these are inclosed by an alabaster balustrade. The large slab of jade was sent as a gift to Timur-leng's successor Nadir-Shap in 1415 (10 years after the death of Timur-leng) by a Mongol Princess. In the transportation of this costly stone it was broken in two but was carefully cemented together before being put in place over the tomb. On it are engraved the names and titles of the sovereign and his ancestors, also a number of verses from the Koran.

Timur-leng knew enough of human nature to realize the danger of having his bones disturbed if they were interred in such a conspicuous place, so he built a subterranean vault in which he was buried. This vault could be visited only by a select few, while the immense slab with which his tomb was sealed could be raised, only by a still smaller number of



A VIEW OF MIZRA-ULUG-BEG MEDRASS, SAMARKAND



INNER COURT OF A MEDRASS OFF FROM THE RIGISTAN, SAMARKAND

favorable individuals. Now, however, there is free access to this most sacred portion of the mausoleum which is dimly lighted by candles continually kept burning on dirty tallow be-dripped wooden candle sticks.

The present business center of the city is to be found in the former intellectual center—the great court of the Rigistan. This is a great square open on one side but surrounded on the other 3 by immense college buildings or Medrasses. Within this court the retail bartering is carried on while the wholesale cattle and wool market lies a short distance away. Of the buildings surrounding this public square, that of Mizra-Ulug-Beg is the oldest having been constructed shortly after the death of Timur-leng in 1420. This was specially renowned because of the mathematicians and astronomers who came from its college halls. Its founder, Ulug-Beg, grandson of Timur-leng, was specially interested in astronomy hence the remarkable development of this branch of science during his reign.

The remaining two buildings facing the Rigistan were not built until the first part of the XVII century, which period Durrieux calls the "Renaissance of Persian art." The Shir-Dahr Medrass was built in 1618, by the order of Yalangtach Bakadour, and is much more brilliant in its decoration than Mizra-Ulug-Beg. This, the largest of the schools, is so named because of the two lion, or possibly tiger heads, which decorate the top of the gateway. These heads are nearly effaced but still show their outline, and are perhaps one of the most remarkable pieces of work in connection with the Medrasses of Samarkand. As a rule the mussulmans do not use figures of men or animals for ornamenting their buildings, so that these are almost, if not, the only animal figures that have been found adorning ancient buildings in Turkestan.

From the Rigistan the Shir-Dahr makes an impressive appearance. The high arched recess from which the door proper opens into the interior court is finely decorated with enameled bricks of all colors, turquoise blue predominating. This recess is set in a massive square front with two short square columns rising on either side. Over the two wings of the building rise bulb-shaped corrugated domes, while at the extreme corners facing the Rigistan rise two pseudo-campanile columns. The whole is elaborately adorned with figures in colored bricks while around the base are numerous Arabic inscriptions. The high circular columns apparently inclining slightly toward the main building give a peculiar effect. Probably this inclination is entirely an optical illusion although several travelers have regarded it as an actual leaning of the columns. The court of this Medrass is surrounded by 64 rooms arranged in 3 stories. Each room has a single opening onto the court and was intended to accommodate two students, so the capacity of this school was 128 pupils. In the center of the court is a small building surrounded by trees. Most of the court, however, is paved, but much overgrown with grass and weeds. The other building opening on the Rigistan is Tillah-Kahir which was built about the same time as the Shir-Dahr. The general plan of this building is the same as that of the others on the Rigistan. It contains 56 rooms accommodating 112 students. The chapel of this Medrass is of special interest because of the beauty of its arched ceiling. However, most of this fine work is lost in obscurity on account of the darkness.

The Shir-Dahr and the Tillah-Kahir were built for the use of theological students and were at one time well supplied with funds for the support



TOMBS OF THE WIVES OF TIMUR-LENG, SAMARKAND
[From *Asiatic Russia*, McClure, Phillips & Co.]

of the same. The Shir-Dahr still possesses lands which bring in an annual revenue of something like \$6,000, while the lands belonging to Mizra-Ulug-Beg bring in between \$600 and \$700 a year. This money is almost entirely used up by parasites who have attached themselves to these schools, and live comfortably without doing either work or study.

From the Rigistan a winding street, running to the northeast past a well kept bazar, and the cotton and the cattle market, leads to the great Bibi-Khanum a most magnificent Medrass erected by Timur-leng's favorite Chinese wife and made to accommodate 1,000 students. It originally consisted of a large quadrangular building, the court of which was paved with mosaic work. This quadrangular building connected 3 mosques two of whose domes have been destroyed by earthquakes, and the remaining one is very badly cracked. Although this was ruined to a greater extent than the Medrasses around the Rigistan its arches still are among the most impressive to be found in Samarkand. When Vambéry visited Samarkand, before the earthquakes had disturbed this building he was very much impressed by its architecture, in fact he considered it a model for that style. Besides these Medrasses there was another 5 miles to the southwest of the city, known as Khodja Akbar and especially noted on account of the beautiful floral designs of enameled bricks with which it was embellished. Now, however, its courts are given up to wild flowers and weeds although sometimes crops have been raised there.

Just outside the wall of Samarkand, but yet near the Bibi-Khanum is Hazreti-Shah-Zindeh the summer palace of Timur-leng. This stands on a terrace which is approached by 40 marble steps. Near it is the tomb of Shah-Zindeh who was a companion of the Prophet and is still supposed to live in the mausoleum and is expected some day to rise for the defense of his religion. The fame of this tomb was very widespread as early as the XIV century.

There have been many vague accounts of a great library founded by Timur-leng containing an immense collection of Greek, Armenian and Persian books which he had gathered from all the lands he conquered. But Vambéry, the earliest of the European travelers to visit Samarkand, could find no trace of this library and it is generally believed that the stories concerning it are legends that have grown up, like many others, around the hero—Timur-leng.

East of the Bibi-Khanum lie the tombs of Timur-leng's wives and sisters. These consist of a series of domes rising from successive terraces to which you ascend by means of a marble stairway. The entrance to this street of tombs, which is somewhat below the present level of the ground, is constructed on the same general plan as the fronts of the Medrasses around the Rigistan. The exteriors of these tombs are very beautifully decorated with blue, green and pink designs, but their interiors, although equally beautifully decorated, are obscured by dust and dirt, for it is the home of numerous birds and bats which make it anything but attractive. After passing these series of tombs one comes out on a desolate hill, used as a burying place, from which a fine view of the harmoniously colored domes of the tombs can be obtained.

The citadel of the city was situated on a slight eminence in the western section and was one of the strongest in Turkestan. However, only one of the interesting ancient buildings remains here—the audience hall of Timur-

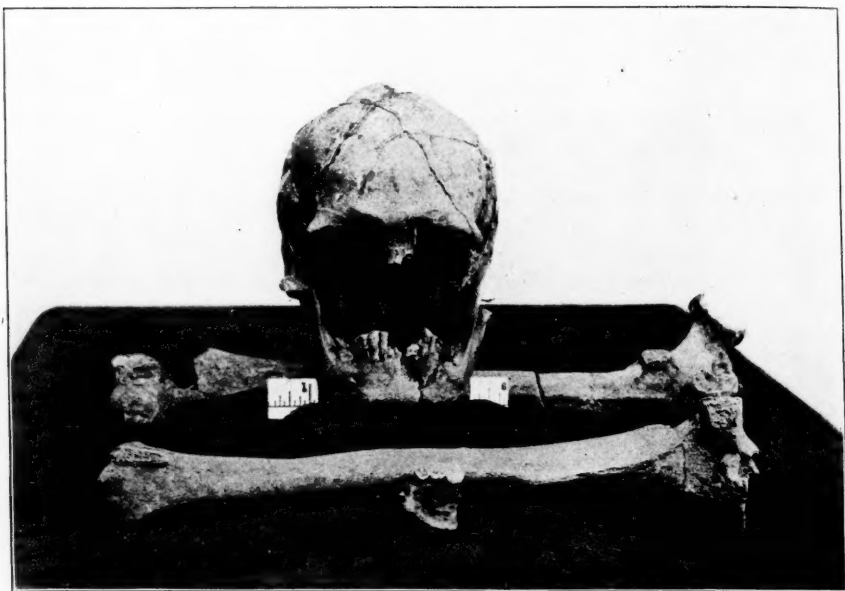
leng. This is a long narrow court surrounded by a colonnade within which is the Keuk-tash or Judgment Seat from which Timur-leng meted out judgment to his subjects, and which in later years was used for the same purpose by the Emirs of Bokhara. This Seat is a gray stone which is said to have been brought from Brussa, one of the ancient capitals of Bithynia situated about 60 miles south of Constantinople. As this stone lies within the present Russian fort, it requires considerable red tape to obtain permission to see it.

Around the city of Samarkand especially to the north and west there are numerous large heaps of bricks both plain and enameled, among which ruins numerous Græco-Bactrian coins have been found, and it is probable that further excavation would bring to light much of interest concerning the old Grecian occupation which extended beyond Turkestan to the south-east into Northern India.

Merve, Bokhara and other old cities of the Aral-Caspian region possess a few ruins dating from the time of Timur-leng's empire, but only in Samarkand are these great monuments concentrated. The influx of Russians to Turkestan, with their remarkable energy in the construction of museums for the preservation of local historical and archaeological relics, will be of great service in saving what still remains of the past. But besides the imposing ruins of Samarkand, which would attract even the way-faring man, there are many mounds of much earlier date scattered over the country. These have been excavated to some extent but without important results. Later work, however, may reveal much concerning the early history of this beautiful irrigated garden spot which lies between the snow-capped peaks of the Alai Tagh and the desert mirage of the Kizil Kum.



LOOKING DOWN FROM THE HILL BACK OF THE TOMBS OF TIMUR-LENG'S WIVES



FRONT VIEW OF LANSING SKULL WITH THE THIGH BONES



SIDE VIEW OF LANSING SKULL WITH SINGLE THIGH BONE

[For these illustrations we are indebted to Prof. M. C. Long, Curator of the Public Museum, Kansas City, Mo.]

THE FOSSIL MAN OF LANSING, KANSAS

BY WARREN UPHAM

LAST February, during the excavation of a tunnel in the Missouri valley loess, for use as a farm cellar, close to the house of Martin Concannon, near Lansing, Kansas, about 18 miles northwest of Kansas City, his son discovered a human skeleton at the base of the original and before undisturbed, horizontally stratified loess, which glacialists refer to the Iowan stage of the Glacial Period. The skeleton was imbedded in the upper foot of a stony and earthy débris that appears to have fallen from a closely adjacent outcrop of Carboniferous limestone, which also, in a heavy bed, forms the floor of the tunnel; or perhaps the bones lie in a slight hollow of the débris. Nearly all of the skeleton is represented by the bones found and preserved; but they were disjointed, and were partly broken and decayed. The skull was found entire, but was afterward accidentally broken, and its pieces have been fitted together very satisfactorily by Mr. M. C. Long, who has deposited it in the Public Museum at Kansas City, Mo., of which he is curator.

Above the débris, which has an average thickness of about $2\frac{1}{2}$ feet, the upper $\frac{3}{4}$ of the tunnel consisted of the loess, which also reaches up to the surface, 20 feet above where the skeleton lay. An irregularly eroded slope of the same loess, mainly enveloping the bedrock, continues upward and attains at the distance of $\frac{1}{4}$ to $\frac{1}{2}$ a mile the general height of about 200 feet above the Missouri, forming there the top of the river bluffs and the contiguous uplands. It was deposited during the Iowan stage of glaciation, having been swept from the ice-sheet by the waters of its melting and of rains, carried by the river floods, and gradually laid down in a very broad and deep flood plain along the valley, filling it across all the present wide bottomland area to the height of the present bluffs. Subsequently, when the supplies of water and of silt were diminished, the river re-excavated its valley, which in the vicinity of Lansing is from 2 to 4 miles wide. The skeleton was about 12 feet above the extreme high water of the Missouri river, which here rises 25 feet above its extreme low water, these respectively being 760 and 735 feet above the sea.

Examination of the tunnel and its vicinity, on August 9, by Prof. N. H. Winchell, president of the Geological Society of America, Profs. S. W. Williston and Erasmus Haworth, of the State University, Lawrence, Kansas, and Mr. M. C. Long and others from Kansas City, with the present writer, convinced us all that the skeleton was entombed at the bottom of the general loess deposit, when it began to fill this part of the Missouri Valley, and that as before noted, it belongs to the Iowan stage in the later part of the series of time divisions of the Ice Age. A detailed description of the discovery, of the section observed in the tunnel, and of the geologic features of this vicinity, is given in my paper on this subject in the September *American Geologist*, reporting the observations and conclusions of this party of scientists.



ENTRANCE TO TUNNEL IN WHICH THE FOSSIL MAN OF LANSING WAS FOUND

The very old Kansan glacial drift, including many boulders of the red Sioux quartzite, is thinly spread on this northeastern part of Kansas, under the loess, and reaches about 30 miles south of Lansing, terminating along an east to west boundary 12 to 15 miles south of the Kansas or Kaw river.

This discovery opportunely confirms and supplements the previously known evidences of man's presence on this continent during the Ice age, which had been well set forth by Prof. G. F. Wright in two important works, *The Ice Age in North America* (1889) and *Man and the Glacial Period* (1892). The observations there relied upon, as demonstrating that men here were contemporaneous with the northern glaciation, have since, however, been called into question and strenuously disputed by some of our ablest geologists and archæologists. The Late Glacial man of the Mississippi and Missouri region is now made known, and is seen by his bones to have been long-skulled, with beetling eyebrows, low and receding forehead, and projecting jaws. His stature, according to Prof. Williston, was about 5 feet and 8 inches, like the average of our people to-day.

Some of the stone implements of these primitive men have also been found, as noted by my paper before cited, in the loess at Muscatine and at Council Bluffs, Iowa. They indicate a stage of culture perhaps as far advanced as the Solutrian and Magdalenian stages of the Paleolithic period in Europe.

Accepting the computations and estimates of Winchell, Andrews and others, that the Postglacial period, since the ice-sheet finally melted off from the northern United States and southern Canada, has measured about 7,000 years, my studies of the glacial Lake Agassiz indicate for the time of departure of the ice along the whole extent of that vast lake only about 1,000 years, and probably for the recession of the ice border from the Iowan stage to the north end of Lake Agassiz about 5,000 years.

The Antiquity of the Lansing fossil man appears thus to be about 12,000 years, which I regard as no more than an eighth part of the whole duration of the Ice age, in its successive Albertan, Aftonian, Kansan, Helvetian (or Buchanan), Iowan and Wisconsin stages. This estimate of the age of the Lansing man, however, is to be taken merely as my matured opinion, based on a systematic study of the sequence of events constituting the Glacial period. It can scarcely be so little as 10,000 years, and may indeed, according to estimates by other glacialists for the date of the Iowan stage, have been even 20,000 years, or more. At the most, it can be only a small fraction of the antiquity of man in Europe, where he seems surely to have been coeval with the beginning of the Ice age.

* * * *

HUMAN REMAINS BELOW THE LOESS OF KIEV, RUSSIA

BY PROFESSOR P. ARMASHEVSKY

IN connection with the excavation of the *Fossil Man of Lansing, Kansas*, it is interesting to note the somewhat similar location of human remains which were found some years ago below the loess at Kiev, Russia. The historically interesting city of Kiev, is situated on a high bluff 350 feet above the Dnieper. The exposure is kept fresh by the erosion of the river, and in this way the stone implements about to be considered were brought to light 53 feet below the top of the bluff. In 1900 the Assistant Editor of RECORDS OF THE PAST was shown this section by Prof. Armashevsky who is a teacher in the government school at Kiev, and who made the discovery. The following is a translation of his report which was prepared for the VII International Geological Congress, held at St. Petersburg in 1897. [Editor.]

The outcrops on the estate of Messrs. Ziwal and Bagréew are of special interest. In 1893 traces of man belonging to the most ancient Paleolithic age were found here. These estates are situated on Kirillovskaya street at the foot of an elevation on the bank of the Dnieper not far from the church of Jordan. The height here is cut by two deep ravines, between which stretches the narrow ridge of a hill which slopes down towards Kirillovskaya street. At the approaches to the street the width of the hill does not exceed 30 meters [nearly 100 feet] but in the direction of the Loukianovka it increases considerably. The examination of the outcrops in different parts of the hill ***shows that the general section of the locality is made up of Tertiary and Post-tertiary deposits.

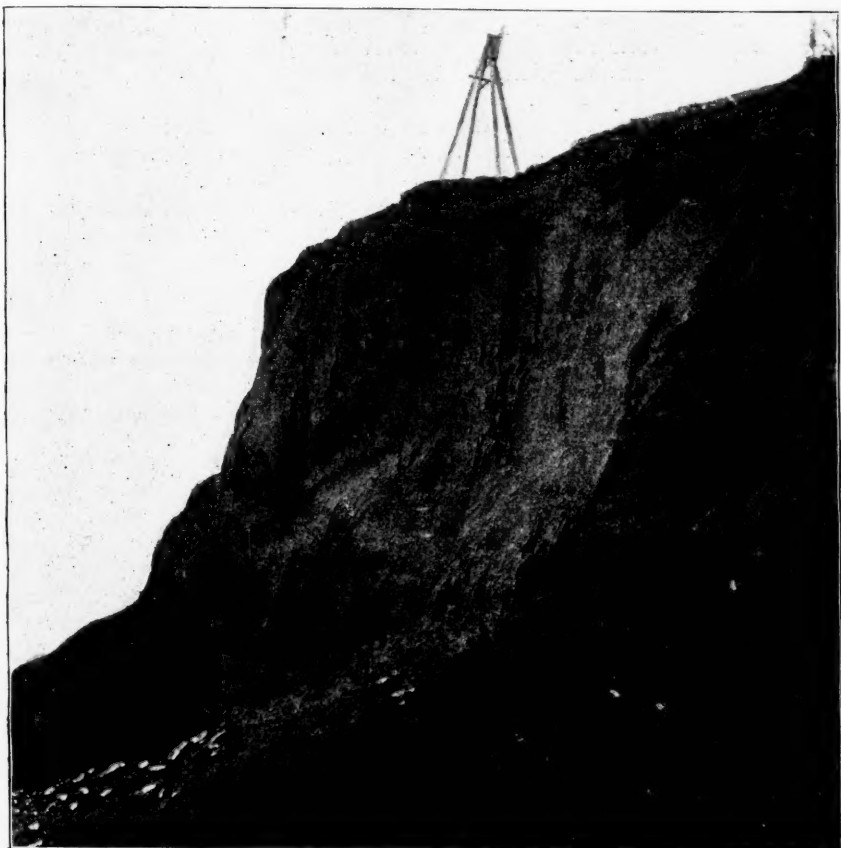
The outcrop on Mr. Ziwal's estate actually presents, thanks to the great artificial trenches, a continuous vertical wall which shows in a very distinct manner the rocks following the Postglacial period.

- a.—Loess (about 10 m. [32 feet]).
- b.—Sandy stratified clay of a yellowish brown color (1½ m. [5 feet]).
- c.—Gray and greenish gray sand, partly argillaceous sometimes greenish, containing here and there gravel and small blocks of either local or northern rocks and a bed called "couche de culture humaine" (6 m.). [Bed of human culture (20 feet).]
- d.—At the base one sees here and there the appearance of clay with *Spondylus* which directly supports the Postglacial deposits.

On the opposite side of the hill, turning towards Mr. Bagréew's estate, we see the same series of rocks outcropping, with this difference that the greenish gray sands here enclose some concretions of rather compact gray sandstone. On Mr. Ziwal's estate, the same as on Mr. Bagréew's, there have been found, in the lower bed of the Postglacial deposits—gray sand, lying at a depth of from 14 to 16 meters [45 to 50 feet] below the surface of the soil—a number of objects testifying to the sojourn of man in this locality. They are principally instruments fashioned from pieces of flint, larger or smaller knives, scrapers and points with all the characteristic indications of the work of man's hand. The flints, called nuclei or cores, from which fragments have been detached so that the number of rough flints, evidently prepared to be used in working, have accumulated in heaps. The flint implements are often accompanied by a large quantity of mammoth bones, especially of their means of defense, their molar teeth, the bones of their fore- and hind-feet, apparently from at least 5 individuals. Several of these bones show distinct evidence of having been broken with the aid of sharp-edged instruments. At the same time a number of objects were found testifying to the use of fire, as a quantity of partly charred wood proves, some pieces of wood and half burned bones, as well as two blocks of granite which had been submitted to the action of fire. All these objects were found here in such abundance that the charcoal, small bones and fragments of flint formed two thin beds in the sand called the "bed of human culture"; they are as well shown on the round slope towards Mr. Ziwal's estate as on the opposite slope facing Mr. Bagréew's estate.

If one considers that, the implements of flint pieces were found here in connection with the nuclei from which they were detached, that these implements have perfectly preserved their edge, that, moreover, they are found in heaps of flint which have not been worked and all through which are mixed pieces of charcoal and mammoth bones often broken and burned, one will be convinced that the place where these human works were found was certainly a place of sojourn apparently very far back in the Paleolithic epoch.

In order to judge the antiquity of prehistoric human remains, found in this or similar localities, we have 3 remarkable indexes: the quality of the objects coming from the men's hands, the remains of animals accompanying these objects, the depth at which they have been found beneath the beds which cover them. On examining, from these 3 points of view, the objects found on Messrs. Ziwal's and Bagréew's estates, we recognize that they are typical objects of the Paleolithic epoch, detached with skill from very large pieces of flint. There is not found the slightest trace of polished stones, so characteristic of man's presence during the Neolithic epoch. The numerous mammoth bones by the side of the flint objects prove that the men who worked them, lived contemporaneous with the mammoth, which was at that time one of the principal resources for his food. Finally, on examining the antiquity of these works from the point of view of the depth at which they were found—evidently the safest and most incontestable argument—we see that all these objects are covered by a layer of 17 m. [55 ft.] thick, composed of loess, clay and sand, this latter is transformed here and there into sandstone. It is by comparing the depth of the bed of these objects with the situations of beds of similar objects in other parts of European Russia that one can best judge of their age. Up to the present



CLIFF OF LOESS AT KIEV, RUSSIA, FROM WHICH HUMAN IMPLEMENTS WERE TAKEN 55 FEET BELOW THE SURFACE

time 5 of these beds are known: 1, at the village of Gontsy, Loubny district, province of Poltawa; 2, at the village of Karatcharowo, Mourom district, province of Nijni-Novgorod; 3, at the village of Kostensk, province of Woronéj; 4, in the neighborhood of the village of Stoudénitsy, Pódogie; 5, in the vicinity of Kamenets-Podolsk. The principal ones are those of Gontsy and Karatcharowo, also considered under the geological report. Heaps of objects shaped from fragments of flint have been found there by the side of charcoal and mammoth bones in a bed of loess, but at a depth of not over 4 feet.

After all that we have just said, on the situation of the bed containing these objects, we do not fear that we deceive ourselves by asserting that man must have appeared in the territory of Kiev at a time remote enough for the Postglacial epoch. It is probable that central Russia was then still covered by its mantle of ice and that southern Russia had a climate cold enough to be favorable to the existence of the mammoth, rhinoceros and musk-ox. In reflecting on this, one involuntarily asks at what precise

time man must have appeared in this country and how long must have been the prehistoric time of his existence. It is scarcely possible as yet to assert definitely on this point, but the following considerations may throw some light on the question.

They have found at Kiev as I have already said, the evidence of the presence of Neolithic man. Thus, for example, the grottoes near the brick-yards of Kirillovskaya street must have served as a stopping place for prehistoric man at that period, because there has been found a quantity of kitchen-waste, fishbones, and the remains of mammals which still exist to-day, shells of mollusks of the genera *Anodonta* and *Unio*, accompanied by vase fragments of rude workmanship and polished stone implements. Similar traces of man's presence in these places during the Neolithic epoch have been found in the vast subterranean caves which served as habitations, at the summit of the hill between Messrs. Ziwal's and Bagréw's estates, in which at a depth of 17 m. [55 feet], were found imbedded the objects described, left after the men of the Paleolithic epoch. The grottos near the Kirillovsky Hospital, like the subterranean huts, were excavated in the loess, consequently the men of the prehistoric period who appeared in the region of Kiev seem to have been there at the same time as the very distant Postglacial period, when the rocks of the loess stratum had already commenced to be deposited, and must have continued to exist there after the deposit of the loess. In this manner the duration of time necessitated by the deposition of nearly all the strata of the Postglacial period in the form of loess, clay and sand corresponds to the changes of climatic and physiographic conditions which have caused the disappearance of the great mammals of the mammoth period, and their replacement by a fauna scarcely different from that of to-day. The deposition of these rocks and such a remarkable change of the fauna certainly required a very long lapse of time, so that, if it is estimated, conforming to the opinion of Prof. W. Antonowitch, that the length of the historic period of the present man on the territory of Kiev is 2,000 years, we arrive at the conclusion that the prehistoric period of his existence in this place exceeds many times that length of time.

In any case it is certain that Kiev can be justly considered as one of the places in the vast territory of European Russia where man has lived from the earliest time.

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AN EGYPTIAN IDEA OF HEAVEN

BY ISAAC MYER

THE following is a description of the entrance into the Egyptian heaven of King Pepi I, also named Mery-Ra, third king of the VI Dynasty [*circa* 3467-3447 B. C.]. His Pyramid, called Men'-nefer, was entered by Prof. G. Maspero at Saqqarah in 1880. It is the same type as those of Unas, last king of the V Dynasty, and of Teta, first King of the VI Dynasty, except that the eastern chamber is one room, and is not divided into a large cross passage and 3 small chambers at its side.

It was in the reign of this king that Una lived, in whose tomb at Abydos, was found the first Egyptian historic description.

The following inscription was found, among many others, incised on one of the walls of the chamber in which was the sarcophagus of the king. It is very important from its giving to us the idea of heaven as it existed in Egypt about 5,400 years ago:

"Hail, Osiris Pepi! Thou hast come and thou art radiant; thou rulest like the god who is seated upon his throne, who is called Osiris; thy soul is with thee in thy body, thy form of strength is with thee, behind thee, thy crown is upon thy head, thy head-dress is upon thy shoulders, thy face is before thee, and those who sing songs of adoration are upon both sides of thee; the followers in the train of a god are behind thee, and the divine forms who cause the god to come, are upon each side of thee, the god cometh, this Pepi hath come upon the throne of Osiris. The Shining One cometh who dwelleth in *Netat*, the Master who dwelleth in *Tini* (Thinis), and Isis speaks upon thee, Nephthys holdeth converse with thee, and the Shining Ones come up to thee, bowing down even to the ground, in adoration at thy feet, *by reason of the power of the writing which thou hast*, O Pepi, in the region of *Sa* (*Sabu*?).¹ Thou goest forth to thy mother Nut (i. e., the sky) and strengthen thy arm, and she maketh a way for thee through the road to the sky² to the place where Ra (the Sun-deity) abideth. Thou hast then opened the two gates of heaven, thou hast opened the two doors of *Quobhu* (i. e., the celestial deep); thou hast there found Ra and he watcheth over thee, he hath taken thee by thy hand, he hath guided thee into two temples of heaven, and he hath placed thee upon the throne of Osiris. Then hail, O Pepi, for the Eye of Horus cometh to hold converse with thee,³ thy soul which liveth among the Shining Ones cometh unto thee. As a son defending his father, and as Horus avenges Osiris, even so Horus will defend Pepi against his enemies (i. e., the injurious demons). And thou standest, O Pepi, avenged, equipped in all things like unto a god, and supplied with all the forms of Osiris upon the throne of Khent-Amenta. Thou doest that, which he doeth among the immortal Shining Ones, and thy soul sitteth upon its throne being provided with the form, and it doeth whatever thou doest in the presence of Him who liveth among the living, by the command of Ra, the great god. It reapeth the wheat, it cutteth the barley, and it giveth it unto thee. O Pepi, he who hath given unto thee all life, and all energy and eternity and thy power of speech and thy body, is Ra, and thou hast taken the forms of a god, and thou hast become great because of that, near the gods who dwelleth among the living, and *it is the powerful magic of the writing which thou hast, thou striketh terror into their hearts*. Thy name shall live upon the earth, thy name shall endure for ages upon earth, thou wilt not perish, thou shalt never be annihilated."⁴

It is to be noted, that the dead were identified with Osiris certainly as early as the V Dynasty [circa 3998-3721 B. C.]. It is also to be noted that Osiris is especially king and deity of the dead and friend of mankind,

¹The *Sabu* was the spiritual body, "the region of the *Sabu*" would be therefore the place in which the spiritual bodies lived.

²Road of the Sky. This likely refers to the Milky Way, which cuts the ecliptic, at the summer and winter solstices.

³This refers likely to the deity of day, or of the sun, the *Utebat*, or *Litiu*, or *Uzaiti*, the Eyes of Horus, were *inter alia*, the Sun and the Moon; the former, the right eye; the latter, the left eye.

⁴*Les Inscriptions des Pyramides de Saqqarah*, par G. Maspero, etc., Paris, 1894, pp. 149-151. *Recueil de Travaux*, etc., by the same, Vol. V, ap. 159, II, 1-21.

giving them eternal life, and as such, was considered as the "Good being," and after having been murdered by Set or Typhon, the Wicked Demon, Osiris arose from the dead with a perfect body, and thereafter lived forever without any decay or corruption.¹ Osiris is, "Governor of those who are in the Netherworld, who makest mortals *to be born again*, who renewest thy youth," etc. [*Book of the Dead*, Chapter CLXXXII.]

* * * *

ASIATIC RUSSIA²

THESE important volumes give in most interesting form a comprehensive survey of the vast region controlled by Russia outside of Europe. No aspect of nature or of life has been neglected. Students in most diverse fields will find gathered here for their use abundance of suggestive material. The author is well known for his keen and comprehensive observation, his power of vital interpretation, and his clearness of literary expression. There is space here to speak only of some of the contributions of *Asiatic Russia* to our knowledge of antiquity.

The movement of Russia into Asia is in fact a return of one branch of the Aryan race towards its original habitat. At many points it is lifting the clouds of oblivion that had settled for generations over regions that were once centers of most active life. Ancient Colchis and the valleys of the Oxus and the Jaxartes are again becoming open to the knowledge of Europe, more open than they had been since the days of classic Greek and Roman writers. One gratifying result of the better knowledge thus coming to our generation is to raise our estimate of the credibility of the early records. It was once easy to say that Pliny must have been an extravagant exaggerator to say that a merchant needed more than a hundred interpreters if he would trade in Colchis. Present day experience in Trans-Caucasia makes Pliny's statement seem very simple matter of fact [p. 272]. How incredible a legend seemed the story of Herodotus that Alexander, digging a well near the Caspian Sea found oil instead of water! This can no longer be counted against the ancient historian's accuracy in view of the petroleum about Baku [p. 448]. The influence of such confirmations of the old writers can but be most beneficial upon the spirit of research in this too skeptical age.

Great results in the form of new knowledge may be expected when there has been sufficient time for thorough exploration of the ancient seats of activity now under Russian rule in Turkestan. The transient splendors of Samarkand in the days of Tamerlane, which already loom with fascination through the breaking mist [p. 371], will be brought clearly before our vision. We shall uncover no one yet knows how many successive layers of ancient civilization in Merv, Balkh, Tashkent and the Pamir.

¹See especially as to this, Chapter CLIV, of the *Per-em-bru*, the so-called, *Book of the Dead*. In this, the deceased announces his belief in the resurrection of the spiritual body and the life eternal, based upon the assumption that Osiris died, arose again, and lived in a perfect body, and lived thereafter, in eternity, and prays Osiris that he be like him.

²*Asiatic Russia*, by George Frederick Wright, LL.D., F.G.S.A. With 10 maps and 83 illustrations. In two volumes. 8vo. Pp. xxii, 290 and xii, 340. New York: McClure, Phillips & Co., 1902.

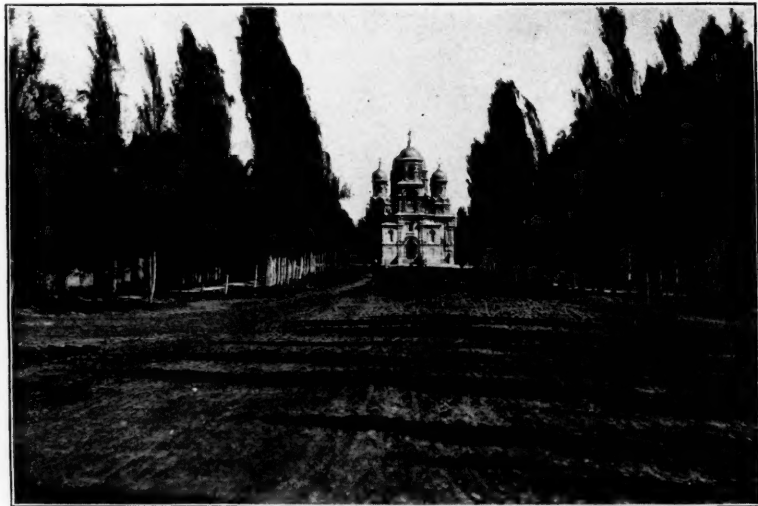


VIEW OF MEDRESSA FROM THE RIKISTAN
[From *Asiatic Russia*, McClure, Phillips & Co.]

In Siberia the upper valley of the Yenisei is especially rich in pre-historic mounds whose contents have already yielded abundant material for tracing the progress of the human race from stone implements through bronze to iron. Russian scholars are showing an interest and thoroughness in collecting and classifying these remains scarcely surpassed by their confrères in more western lands. The museums at Yeniseisk, Krasnoyarsk and especially Minusinsk now draw scholars from other lands who wish to complete their knowledge in this field [pp. 253, 402. Also see RECORDS OF THE PAST for January, 1902, pp. 7 to 13]. At Irkutsk near Lake Baikal are gathered implements from the burial mounds of still ruder people who could work stone, bone and ivory but had neither bronze nor iron. Human remains are also found in numerous places mingled with the bones of animals now extinct. Thus Siberia testifies, as the finds of the Somme Valley had long ago witnessed, that man's tenacity of life far excels that of some of the largest animals he found upon the earth.

Of great significance is the finding of human remains in marine terraces that are now in some places 1,000 feet above the level of the sea. Here is a geologic basis for such destruction of human life by water as is reported in the early narratives of nearly all the tribes in the world.

Thus the extending system of Russian railways is not only contributing to the order, unity and prosperity of that great empire but is putting historical science under obligation by opening to travel regions that had been almost inaccessible. It is impossible in a brief review to speak adequately of the value of the volumes we are noticing. It is rare to find so successful a combination of brevity, thoroughness and interest. The publishers have given the work attractive form with heavy paper and generous margins. The numerous illustrations illuminate the text and are nearly



RUSSIAN STREET AND CHURCH IN TASHKENT

all from original photographs. The index is a full guide to the encyclopedic array of information. The volumes cannot fail to increase greatly interest in Russia and in the ancient regions over which her rule now extends.



KURGHIZ TARTAR FELT TENTS

Notes

A VIKING TOMB has recently been discovered which contains a skeleton of a woman, a complete set of arms and the skeleton of a horse. From this it appears evident that the woman was a warrior, which is in accord with statements made by old Norse sages who "speak of women warriors."

PICTOGRAPHS NEAR DORDOGNE.—The last number of the *American Antiquarian* gives the following quotation from *La Nature*, published in Paris:

A picture gallery in a cave passage 300 feet in length, containing carefully drawn and well preserved rock engravings of animals, including the mammoth, has been found near Dordogne, in France. There were 109 figures in good condition; rendered with extreme care that will allow a separate study, for many points in detail, the evident work of artists, reproducing with fidelity and technical skill, the animals which they saw.

TREPHINING.—In the notes of the June number of *RECORDS OF THE PAST* we quoted at length from a paper published in the *Journal of the Anthropological Institute of Great Britain and Ireland*, on *Trephining in the South Seas*. Professor Charles W. Dulles, Lecturer on the History of Medicine, in the University of Pennsylvania, takes exception to the statements there recorded. We hope later to have an article from him on this subject. The following is an extract from his letter to us:

"Your readers who are not surgeons have a right to know—surgeons will not need to be told—that the note published in your issue for June, 1902, page 187, does not anywhere describe an operation of 'trephining,' but uses this term

erroneously in every instance where the text describes what was actually done. Those who have investigated the subject of prehistoric medicine more than casually know how difficult it is to be sure of the inferences to be drawn from the few data obtainable."

IN A LECTURE on the *Significance of Assyriological Research for Religion* delivered by Dr. Frederick Delitzsch before the Emperor of Germany, which has been translated and published in the *Open Court*, interesting light is thrown on some of the Bible passages by comparison with the Babylonian cuneiform inscriptions. Dr. Delitzsch takes the passage in Numbers vi: 24-27: "The Lord bless thee, and keep thee. The Lord make His face to shine upon thee: The Lord lift up His countenance and give thee peace," and says concerning it:

Countless times has this blessing been given and received! But it was never understood in its full depth and import until Babylonian usage informed us that "to lift up one's countenance or eyes upon or to another's," was a form of speech for "bestowing one's love upon another, for gazing lovingly and feelingly upon another, as a bridegroom upon a bride, or a father upon a son." This ancient and glorious benediction, therefore, invokes on man with increasing emphasis God's blessing and protection, God's benignant and gracious consideration, and lastly God's own love,—finally to break forth into that truly beautiful greeting of the Orient, "Peace be with thee!"

EXCAVATIONS AT ANTINOE.—Mr. M. A. Gayet since 1896 has been working on the excavation of that celebrated city Antinoe. This city was founded by Hadrian in 140 A.D. to commemorate the devotion of Antinous, who sacrificed his life because the oracle had declared that the "emperor would die if his most cherished friend did not sacrifice his life by offering himself as a victim in the place of the emperor." During a voyage on the Nile Antinous threw himself into the river and at this point the superb city of Antinoe was erected as a monument to his devotion, in fact he was deified like Osiris and honored in plays at the circus, the theater and olympiads.

During the IV century A.D. the city was either destroyed or deserted, it is impossible to tell which. However, Mr. Gayet has found traces of fire in many parts of the ruins which leads him to favor the hypothesis that "some madly orthodox person delivered the city to the flames in revenge for the sufferings of the neophytes or in order to destroy the god and temples of Paganism."

In a recent number of *Public Opinion* the following condensed extract from Mr. Gayet's report on the results of his excavations appeared:

In January, 1896, I undertook preliminary soundings in the mass of rubbish which marked the situation of the Hadrian city and since then have steadily pursued the work, until to-day the dead city is disclosed as clearly as if it rose before us in a mirage. Thanks to the soundings, its *ensemble* has been reproduced with its Egyptian and Greco-Roman temples, its avenues bordered with porticos, its arch of triumph surrounded by gateways, its baths, its fish ponds, its still intact hydraulic machines, its circus where the Olympic games were given, its theater, its square where lay the votive columns and the overturned basins, and lastly the houses of the city so carefully preserved under the sand that it is possible to visit each story by mounting the stairs erected centuries ago. In one place we find the quarter of the glass-makers with the partly demolished furnaces, lumps of slag, blocks of gravel in fusion, and pieces of waste deformed by the cooking and thrown in a pile on the rubbish. In another part of the city we see the quarter of the jewelers, the crucible still containing a few particles of gold, and lastly we come to the patrician quarters which are covered by hills of sand, 25 meters in height; these palaces, because of the work involved, I have not been able to excavate. Now that the dead are raised from their sepulchers, this sleeping desert becomes suddenly animated and as the ruins grow clear, civilization is resuscitated with all the perfect minuteness of its former refinement.

ARCHÆOLOGICAL DISCOVERIES IN MEXICO CITY.—Mr. Thomas R. Dawley, Jr., in the *Scientific American* for August 23, gives an account of the discoveries made in Mexico City last winter, from which the following facts are taken: While renovating one of the old palaces the workmen struck a flight of stone steps. Captain Diaz, son of President Diaz, took an interest in this and had the place carefully excavated. Numerous pieces of sculpture were found, among them a tiger or ocelot which weighs 4 tons, 2.3 meters long, a little over

1 meter wide and slightly less than a meter high, a small stone idol near which was a quantity of incense gum, a number of stone skulls carved as if in imitation of death masks, beside numerous other relics which will be preserved in the Mexican National Museum.

The old level of the city was found to be 13 feet below its present level, and other facts brought to light which indicate something of the city's history after its destruction by the Spaniards. Mr. Dawley says:

We know that when Cortez first saw the Aztec city, he compared it to Venice on account of its being composed of islands, and having canals for its streets. With the destruction of the city, the temples and the public edifices were toppled over, filling up the canals. It would seem that the Spaniards would have taken this material to build their new city, but it is evident that they did not. In building the new city they brought building material from elsewhere and built on top of the old.

Another fact demonstrated by the discovery of the temple is that the reconstruction of the city began in a very feeble manner, for the stumps of the trees growing at the base of the steps show that the ruins of the temple must have remained just as the Spaniards destroyed it a long time, thus giving the two trees ample time to sprout between the crevices and grow before they were eventually buried by the debris, upon which the palace of the Acevedos was built, more than a century, or a century and a half later.

The great cathedral was not commenced till a century after the destruction of the city by Cortez, and like the palace of the Acevedos, it must have been built upon the ruins of the Great Teocalli. We can therefore conceive Tenochtitlan a ruined city for upwards of a century, with its demoralized remnants of a once proud race wandering about the ruins till finally the site was accepted for the Capital and the reconstruction commenced in earnest. The value and quantity of relics which are buried beneath these structures can only be conjectured.

CRETE.—The results of the recent work of Mr. A. J. Evans in Crete are summarized in a recent issue of *Nature*. Mr. Evans found that, in order to protect the Throne Room, which had been excavated during previous seasons, it would be necessary to build a house over the whole. How successfully this has been done and what special points of interest have been brought to light by the excavations will be seen from the following quotation from *Nature*:

"In order to support the roof it was necessary to place some kind of pillars in the position formerly occupied by the Mycenaean columns, the burnt remains of which were found fixed in the sockets of the stone bench opposite the throne."

Accordingly pillars of Mycenaean designs were erected, and the whole roofed over. This necessary work of conservation is analogous to that at Dêr el-Bâheri; no attempt at "restoration," as it is understood on the Continent, has been made. All who have seen the result can testify that it is entirely successful.

One of the chief results of the excavation is the inkling it gives to the great extent of the palace, which seems, in fact, to have not only covered the whole of the knoll on which it stands, but to have descended in a series of several-storied hills and towers down the eastern side of the hill to the bank of the stream which runs below. And now that Mr. Evans has announced the discovery at Knossos this year of contemporary representations of Mycenaean houses we may perhaps be able soon to acquire some idea of what the palace may have looked like when seen from the opposite eastern downs or from the way leading up from the sea. . . . On the left is seen one of the great sensational of Knossian discoveries, the quadruple staircase which descended from the Central Court of the Hall of the Colonnades, a hall which reminds one more of a court with loggie in an Italian palace than anything else! And at the point of the staircase the palace was certainly 3 and probably 4 stories high; in fact, 3 flights of steps still remain. Originally the staircase "consisted of 52 stone steps, of which 38, and the indication of 5 more, are preserved." The excavation of the lowest flight "was of extraordinary difficulty, owing to the constant danger of bringing down the staircase above." It was altogether miners' work, necessitating a constant succession of wooden arches."

Mr. Evans is of the opinion that "the whole result of the most recent excavations has been more and more to bring out the fact that, vast as the area it embraces, the Palace of Knossos was originally devised on a single comprehensive plan. The ground scheme of a square building, with a central court approached at right angles by 4 main avenues, dividing the surrounding buildings into 4 quarters, is a small conception which, as we now know, long before the days of the later Roman *Castra*, was carried out in the *Terremare* of Northern Italy. . . . The Minoan architect made claim to the credit of adapting the same root idea to an organic whole, and fitting it into a complicated arrangement of halls, chambers, galleries and magazines, forming parts of a single building."

Further confirmation of the generally accepted date for the earlier parts of the palace, c. 1700 B.C. and later, was found in 1901 by the discovery in the "early Palace stratum," a deposit "containing a large proportion of charcoal, but representing the burnt remains of an earlier structure," and situated "immediately under the Mycenaean wall-foundations, at a depth of 40 centimeters below the later floor-level," of "the lid of an Egyptian alabastron, upon the upper face of which was finely engraved the cartouche containing the name and divine titles of the Hyksos King Khyan," who reigned somewhere about 1800 to 1700 B.C. The style of the hieroglyphs and phraseology of the inscription show us that this object is contemporary with the king whose name it bears. Therefore the discovery of this object of c. 1800-1700 B.C. may be taken to confirm the weaker evidence of the XIII dynasty statuette of Abnub, son of Sebek-user (date c. 2000 B.C.), which was discovered in the course of the excavations of 1900, and with this to indicate roughly the date of the beginnings of the great Palace to Knossos, which is undoubtedly, as its excavators maintain, the veritable Labyrinth of Minos.

The store of Knossian inscribed tablets has been largely increased during the course of the excavations; it is much to be regretted that the Cretan Assembly seems unable to see its way to allow any of these tablets to leave Crete for the purpose of study and possibly interpretation.

Our knowledge of Mycenaean life has been increased in a rather startling way by the discovery of a fresco-painting depicting, side by side with the well-known "cowboys" of the common Mycenaean scenes of *female* toreadors in the act of tackling infuriated bulls. Mr. Evans remarks that:—

"The episode is sensational in the highest degree, and we have here nothing of the mere catching of bulls, wild or otherwise, as seen on the Vaphio Cups. The graceful forms and the elegant attire of these female performers would be quite out of place in rock-set glens or woodland glades. They belong to the arena, and afford the clearest evidence that the lords of Mycenaean Knossos glugged their eyes with shows in which maidens as well as youths were trained to grapple with what was then regarded as the king of animals. The sports of the amphitheater, which have never lost their hold on the Mediterranean world, may thus, in Crete at least, be traced back to prehistoric times. It may well be that long before the days when enslaved barbarians were 'butchered to make a Roman holiday,' captives, perhaps of gentle blood, shared the same fate within sight of the 'House of Minos,' and that the legends of Athenian prisoners, devoured by the Minotaur preserve a real tradition of these cruel sports."

The sinister impression which is given by this discovery is not dispelled by the sight of the deep walled pits, described by Mr. Evans, which are no doubt, as he says, the dungeons of the Palace.

"In these deep pits with their slippery cemented sides above, the captives would be secure as those 'beneath the leads' of Venice. The groans of these Minoan dungeons may well have found an echo in the tale of Theseus."

One is irresistibly reminded of Watt's picture in the Tate Gallery of the horrible Minotaur leaning over the high battlements of Knossos, looking out to sea, awaiting the bringing of his prey. The civilization of Knossos was probably by no means Arcadian, even if it was Pelasgic!

EVIDENCES OF GLACIAL MAN IN EUROPE AND AMERICA.—

The discovery at Lansing, Kansas, in deposits judged by so high authorities as Professors Winchell and Williston and Mr. Warren Upham, to be undisturbed and of the Iowan stage of the Glacial epoch makes it desirable to give, in this connection, a brief summary of the evidence of Glacial man which had already accumulated.

The existence of glacial man in Europe was first determined in connection with the high-level river gravels in the valley of the Somme, situated in Picardy, in the northern part of France. There in 1841 Boucher de Perthes reported finding rudely fashioned stone implements in undisturbed strata of the high-level gravel terraces which reach an elevation of 90 feet. By various means these are decided to be of glacial age.

But for twenty years his discoveries were ignored by scientific men until at length, in 1858 and 1859, several English and French savants, including Professor Prestwich, Mr. John Evans, Sir Charles Lyell and M. Gaudry visited the region and made independent discoveries such as fully satisfied the scientific world. Since then similar discoveries have been made at various places in France, Belgium and Southern England.

Of special interest have been the remains of prehistoric man found in caverns. Of these Kent's Hole in England and the caverns on the property of

the Count of Beaufort, in the commune of Spy, in the province of Namur in Belgium have attracted most attention. The second of these, known as the "Man of Spy," consists of the larger portions of two skeletons, including a nearly perfect skull of the male. In many important particulars this skull has a resemblance to that at Lansing. It has the same beetling eyebrows, retreating forehead and projecting lower jaw. (The most accessible account of this accompanied by a photograph, will be found in Wright's *Man and the Glacial Period*, pp. 275-278. A full discussion of it by Prof. Huxley, appeared in the *Nineteenth Century*, Vol. XXVIII, Nov., 1890, p. 774.)

In case of the Man of Spy, however, and of the human remains in other caverns the connection with the glacial period is largely inferential, depending on the assumed primitive character of the skeletons, and on their association with the remains of animals which became extinct in Europe soon after the glacial period, if not with it. Among these are the Mastodon, the Lion, the Tiger, the Leopard, the Hyena, the Rhinoceros, the Cave Bear and the Musk-Ox. It is also the occurrence of similar remains in the high-level river gravels of Northern France and Southern England which largely determines their glacial age.

The discovery of the relics of glacial man in Europe naturally stimulated investigation in America. The first results of this interest appeared in California where Prof. J. D. Whitney was conducting the State Geological Survey. The most striking of these discoveries occurred near Sonora, at Altaville, in Calaveras County, where a skull was said to have been found in gold-bearing river gravel buried about one hundred feet beneath the lava deposits of Table Mountain. Many other human relics were, from time to time, reported as found under this lava deposit, but the genuineness of them all, including the "Calaveras Skull," was hotly contested.

Later, however, Mr. Clarence King became sponsor for a "pestle" which he took out with his own hands from what he considered to be undisturbed gravel beneath Table Mountain at Raw-hide Gulch near Sonora. Later still Mr. Geo. F. Becker of the United States Geological Survey obtained possession of a mortar concerning which he had, what he considered to be, the best of evidence that it was from a similar position near by. This was soon followed by the discovery in the same vicinity of another mortar, found by Mr. C. McTarnahan in the Boston mine underneath Table Mountain 175 feet from the mouth of the tunnel.

The age of these California discoveries, admitting them to be genuine, is not easily determined; for, the lava outflows of the region have been of various dates, coming down to quite recent times, while the stream erosion by which to estimate the age has proceeded at unknown rates. But there is much the same association of the bones of recently extinct animals with the gold bearings of California that is found in the late glacial deposits of Europe and the Eastern United States.

Coming now to the Mississippi Valley and the Atlantic Coast, we find that as early as 1875 Dr. C. C. Abbott began to report finding roughly chipped implements in the stratified gravel composing the broad delta terrace, 50 feet above tide level, upon which the city of Trenton, N. J., is built. He was facilitated in making these discoveries by the extensive excavation which the Pennsylvania Railroad was carrying on to obtain gravel near their station, and by the existence of various pits to which resort was had by private parts for the same purpose, as well as by several perpendicular exposures of the bank where it was undermined by the Delaware River. In all, Dr. Abbott has reported the finding of twenty-five or thirty implements in the undisturbed strata of this terrace at varying depths down to sixteen feet.

Geologists all agree that this delta terrace is of glacial age, having been deposited at tide water by the vast floods which came down the Delaware River during the last stages of the Glacial Period, when the front of the melting ice

sheet was about 60 miles north of Trenton. The only question raised has been whether Dr. Abbott may not have been mistaken in thinking that the gravel in which he found the implements was undisturbed.

To account for the occurrence of the implements at the depths reported, various theories were propounded. Some suggested that the implements had fallen into cracks in the earth, or into Gopher holes, or down openings made by the decaying tap-roots of trees; while others supposed that the deposits in which the implements were found may, in each case, have been a talus of material which had fallen down from the top of the bank.

In support of Dr. Abbott's conclusion there are to be adduced the character of the soil, which is such that it does not crack open in time of a drought; the central position and freshness of the excavations where the discoveries were made, which would render it unlikely that any careful observer could be deceived, much less Dr. Abbott; and finally the fact that, while on the surface thousands of flint and jasper Indian implements were found, none of this character occurred under the superficial strata of about one foot in thickness, below which depth the implements were all of argillite,—a slack rock metamorphosed by heat coming from contact with some Trap dikes in the vicinity.

But, to render the facts as certain as possible, Prof. F. W. Putnam of the Peabody Museum of Harvard College at different times sent Professors J. D. Whitney, Lucian N. Carr and N. S. Shaler down to Trenton to make independent investigations, and finally went himself. Each of these high authorities reported in detail finding implements in what he judged to be the undisturbed gravel of glacial age. (See proceedings of the Boston Society of Natural History, Vol. XXI, for January 19, 1881: Report of the Peabody Museum, Vol. II, pp. 44-47; chap. XXXII of Abbott's *Primitive Industry*; and the *American Geologist*, Vol. XI, pp. 190-184.) For several years, also, Prof. Putnam has employed Mr. Ernest Volk to dig over and carefully explore a large area of the Trenton gravel to a depth of four or five feet, with the result that he everywhere finds a total absence of modern Indian implements below one foot, but does find numerous implements of an earlier type and of a different material (argillite) in the lower part of his excavations. Finally, in 1900, Mr. Volk succeeded in discovering, and photographing in place, a human femur in undisturbed gravel strata fifteen or sixteen feet below the surface which are unquestionably of glacial age.

Other places where the remains of glacial man have been reported by observers of high authority are at Madisonville, near Cincinnati, Ohio, by Dr. C. L. Metz; New Commerstown, Ohio, by Mr. W. C. Mills the present Curator of the Ohio State Archæological Society; Brilliant, near Stubenville, Ohio, by Mr. Sam Huston, the county surveyor and a collector of wide reputation; Little Falls, Minn., by Miss F. E. Babbitt, later reported upon by Prof. N. H. Winchell, Warren Upham and W. H. Holmes.

It is necessary to say, however, that in each of these cases the genuineness of their connection with the Glacial Period has been stoutly challenged. But if there shall prove to be no way of successfully challenging the glacial age of the Lansing Skull there will be little reason to continue the challenge in the other cases. This fact gives to it peculiar importance.

